

IN THE CLAIMS

1. (Currently Amended) A spin coating process, comprising:

~~dispensing~~ filtering a solution of a solution solvent and about 3 to about 30 wt% thermoplastic polymer, based upon the total weight of the solution, ~~onto a substrate,~~ wherein the solution solvent has a boiling point at atmospheric pressure of about 110°C to about 250°C, a polarity index of greater than or equal to about 4.0, and a pH of about 5.5 to about 9, and wherein the solution solvent consists of a material selected from the group consisting of aryl acetates and C₄ – C₁₀ alkyl acetates, C₂–C₆ alkyl carbonates, formamides, C₁–C₆ N-alkyl formamides, C₁–C₆ alkyl sulfoxides, methoxy ethyl acetate, C₁–C₆ N-alkyl pyrrolidones, phenols, C₁–C₆ alkyl phenols, aryl ethers, C₁–C₆ alky aryl ethers, C₁–C₆ alkyl ureas, C₄–C₆ sulfolanes, N-acetyl cyclic ethers, C₁–C₆ alky acetamides, C₁–C₆ alkyl phosphoramides, C₃–C₆ lactones, aryl alkyl ketones, and miscible combinations comprising at least one of the foregoing materials; ~~and wherein the thermoplastic polymer is unreactive;~~

dispensing the filtered solution onto a substrate;

spinning the substrate; and

removing the solution solvent to produce a coated substrate comprising a coating having less than or equal to 10 asperities over the entire surface of the coated substrate.

2. (Previously Presented) The process of Claim 1, where the thermoplastic polymer has a weight average molecular weight of 20,000 to 70,000 Daltons.

3. (Original) The process of Claim 1, where the thermoplastic polymer has a Tg about 200 to about 260°C.

4. (Original) The process of Claim 1, where the thermoplastic polymer has less than or equal to about 20 meq/Kg of functional groups selected from the group consisting of: carboxylic acids, carboxylic acid salts, carboxylic anhydrides, amines, phenols, alcohols, nitriles, epoxides, oxetanes, isocyanates, cyanurates, oxazoles, cyclobutyl, alkenes, alkynes, and combinations comprising at least one of the foregoing groups.

5. (Original) The process of Claim 4, where the functional groups comprise carboxylic acid groups.

6. (Previously Presented) The process of Claim 1, where the thermoplastic polymer has a weight average molecular weight, measured determined by GPC using methylene chloride as a GPC solvent, that changes by less than or equal to about 10% during the entire process.

7. (Original) The process of Claim 1, where the thermoplastic polymer is a resin selected from the group consisting of polyimides, polyetherimides, polysulfones, polyethersulfones, polycarbonates, polyester carbonates, polyphenylene ethers, polyarylates, and combinations comprising at least one of the foregoing resins.

8. (Canceled)

9. (Previously Presented) The process of Claim 1, wherein the material is selected from the group consisting of butyl acetate, diethyl carbonate, formamide, methyl formamide, dimethyl formamide, dimethyl sulfoxide, methoxy ethyl acetate, N-methyl pyrrolidone, propylene carbonate, anisole, tetra methyl urea, dimethyl urea, sulfolane, methyl anisole, N-acetyl morpholine, dimethyl acetamide, mono methyl acetamide, veratole, hexamethyl phosphoramidate, butyrolactone, acetophenone, phenol, cresol, mesitol, xlenol, and miscible combinations comprising at least one of the foregoing materials.

10. (Previously Presented) The process of Claim 1, wherein the solution solvent comprises less than or equal to about 1 wt% halogens, based upon the total weight of the solution solvent.

11. (Previously Presented) The process of Claim 1, wherein the solution solvent has a dielectric constant of greater than or equal to about 10.

12. (Original) The process of Claim 1, wherein the solution has a viscosity, as measured by ASTM D1824 at room temperature, of about 1 to about 2,000 Cps.

13. (Original) The process of Claim 12, wherein the viscosity changes less than or equal to about 25% after heating at 45°C for 3 hrs.

14. (Original) The process of Claim 1, wherein the solution comprises less than or equal to about 0.1 wt% particles having a diameter, measured along a major axis or greater than or equal to about 0.05 micrometers, as determined by laser light scattering.

15. (Original) The process of Claim 1, wherein the coating comprises a percent haze, as measured by ASTM D1003, of less than or equal to about 1%.

16. (Original) The process of Claim 1, where the solution has a water content of less than or equal to about 0.5 wt%, based upon the total weight of the solution.

17. (Original) The process of Claim 1, wherein the coated substrate has a peel strength of greater than or equal to about 1 lb/in.

18 – 36. (Canceled)

37. (Previously Presented) The process of Claim 4, where the thermoplastic polymer has less than or equal to about 20 meq/Kg of functional groups selected from the group consisting of: amines, phenols, alcohols, nitriles, epoxides, oxetanes, isocyanates, cyanurates, oxazoles, cyclobutyl, alkenes, alkynes, and combinations comprising at least one of the foregoing groups.

38. (Previously Presented) The process of Claim 7, where the thermoplastic polymer is a resin selected from the group consisting of polyimides, polyetherimides, and combinations comprising at least one of the foregoing resins.

39. (Previously Presented) The process of Claim 7, where the thermoplastic polymer is a resin selected from the group consisting of polysulfones, polyethersulfones, and combinations comprising at least one of the foregoing resins.

40. (Previously Presented) The process of Claim 7, where the thermoplastic polymer is a resin selected from the group consisting of polycarbonates, polyester carbonates, and combinations comprising at least one of the foregoing resins.

41. (Previously Presented) The process of Claim 7, where the thermoplastic polymer is a resin selected from the group consisting of polyphenylene ethers, polyarylates, and combinations comprising at least one of the foregoing resins.

42. (Currently Amended) A spin coating process, comprising:
~~dispensing~~ filtering a solution of a solution solvent and about 3 to about 30 wt% thermoplastic polymer, based upon the total weight of the solution, ~~onto a substrate, wherein the~~ solution solvent has a boiling point at atmospheric pressure of about 110°C to about 250°C, a polarity index of greater than or equal to about 4.0, and a pH of about 5.5 to about 9, wherein the thermoplastic polymer has a weight average molecular weight, as measured by gel permeation chromatography using methylene chloride as a GPC solvent;

dispensing the filtered solution onto a substrate;

spinning the substrate; and

removing the solution solvent to produce a coated substrate; and

changing the weight average molecular weight by less than or equal to about 10% during the entire process.

43. (Previously Presented) The process of Claim 42, wherein the solution solvent consists of a material selected from the group consisting of aryl acetates and C₄ – C₁₀ alkyl acetates, C₂-C₆ alkyl carbonates, formamides, C₁-C₆ N-alkyl formamides, C₁-C₆ alkyl sulfoxides, methoxy ethyl acetate, C₁-C₆ N-alkyl pyrrolidones, phenols, C₁-C₆ alkyl phenols, aryl ethers, C₁-C₆ alky aryl ethers, C₁-C₆ alkyl ureas, C₄-C₆ sulfolanes, N-acetyl cyclic ethers, C₁-C₆ alky acetamides, C₁-C₆ alkyl phosphoramides, C₃-C₆ lactones, aryl alkyl ketones, and miscible combinations comprising at least one of the foregoing materials.

44. (Previously Presented) The process of Claim 43, where the material is selected from the group consisting of butyl acetate, diethyl carbonate, formamide, methyl formamide, dimethyl formamide, dimethyl sulfoxide, methoxy ethyl acetate, N-methyl pyrrolidone, propylene carbonate, anisole, tetra methyl urea, dimethyl urea, sulfolane, methyl anisole, N-acetyl morpholine, dimethyl acetamide, mono methyl acetamide, veratole, hexamethyl phosphoramidate, butyrolactone, acetophenone, phenol, cresol, mesitol, xylene, and miscible combinations comprising at least one of the foregoing materials.

45. (Previously Presented) The process of Claim 42, where the substrate is a storage media disk.

46. (Previously Presented) The process of Claim 45, wherein the disk has a surface area of 6,500 mm².

47. (Previously Presented) The process of Claim 42, wherein any of the asperities that are present have a height of less than or equal to about 25 nm.

48. (Previously Presented) The process of Claim 47, wherein any of the asperities that are present have a height of less than or equal to about 15 nm.

49. (Previously Presented) The process of Claim 1, where the substrate is a storage media disk.

50. (Previously Presented) The process of Claim 49, wherein the disk has a surface area of 6,500 mm².

51. (Previously Presented) The process of Claim 1, wherein any of the asperities that are present have a height of less than or equal to about 25 nm.

52. (Previously Presented) The process of Claim 51, wherein any of the asperities that are present have a height of less than or equal to about 15 nm.

53. (Currently Amended) A spin coating process, comprising:

~~dispensing~~ filtering a solution of a solution solvent and about 3 to about 30 wt% thermoplastic polymer, based upon the total weight of the solution, ~~onto a substrate,~~ wherein the solution solvent consists of a material selected from the group consisting of aryl acetates and C₄ – C₁₀ alkyl acetates, C₂–C₆ alkyl carbonates, formamides, C₁–C₆ N-alkyl formamides, C₁–C₆ alkyl sulfoxides, methoxy ethyl acetate, C₁–C₆ N-alkyl pyrrolidones, phenols, C₁–C₆ alkyl phenols, aryl ethers, C₁–C₆ alky aryl ethers, C₁–C₆ alkyl ureas, C₄–C₆ sulfolanes, N-acetyl cyclic ethers, C₁–C₆ alky acetamides, C₁–C₆ alkyl phosphoramides, C₃–C₆ lactones, aryl alkyl ketones, and miscible combinations comprising at least one of the foregoing materials; and wherein the thermoplastic polymer is a resin selected from the group consisting of polyetherimides, polysulfones, polyethersulfones, polycarbonates, polyester carbonates, polyphenylene ethers, polyarylates, and combinations comprising at least one of the foregoing resins;

dispensing the filtered solution onto a substrate;

spinning the substrate; and

removing the solution solvent to produce a coated substrate comprising a coating having less than or equal to 10 asperities over the entire surface of the coated substrate.